

Application No. 09/848,777
Filed: May 4, 2001
TC Art Unit: 1641
Confirmation No.: 6632

REMARKS

Claims 1-16, 18-21 and 30-32 are pending in the present application. Claims 1-2 and 4-5 are cancelled, without prejudice. Claims 3, 6-7, 10-16 and 30 are amended herein. Accordingly, claims 3, 6-16, 18-21 and 30-32 will be pending upon entry of the instant amendments.

Support for the amended claims can be found throughout the specification and encompassed by the scope of the claims as originally filed. Support for the amendment to claim 16 can be found, at least, for example, from original claims 1 and 5. All other amendments to claims 3, 6-7, 10-15 and 30 have been made to depend from the appropriate independent claim. No new matter has been added.

Any amendments to the claims should in no way be construed as acquiescence to any of the Examiner's rejections and was done solely to expedite the prosecution of the application. Applicants reserve the right to pursue the claims as originally filed in this or a separate application(s).

Examiner's Interview

Applicants' Attorney Holliday C. Heine and Associate Chi Suk Kim thank Examiner Kartic Padmanabhan and his Supervisory Patent Examiner Long Le for the telephonic interview held on June 25, 2003, where we discussed the current Office Action and possible claim amendments. Specifically, the Examiner agreed that the rejections made under 35 U.S.C §102, except for the rejection over Van Ness et al. (U.S. Patent 5,667,976), were made in error due to the improper grouping of claims in the current Office Action. Consequently, any subsequent office action will be held non-final

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after the submission of this response and any amendments made herein would be entered. In addition, the Examiner agreed to consider claims wherein the recited biomolecules are limited specifically to proteins and oligopeptides.

Claim Rejections - 35 U.S.C. §102

Claims 1-6, 10, 14, 16 and 18 remain rejected under 35 U.S.C. §102(b) as being anticipated by Van Ness et al. (U.S. Patent 5,667,976). The Examiner states, in response to Applicants' previous arguments, that the "beads of [Van Ness et al.] are coated with nylon, which is sufficient to meet the requirements of the beads or particles claimed."

Applicants respectfully traverse the foregoing rejection.

Applicants' invention is directed to a liquid composition comprising a colloidal suspension of a biomolecule-binding matrix material dispersed in a liquid, wherein particles of the matrix material in the colloidal suspension are of a defined particle size. In addition, the biomolecule-binding matrix material is made of nitrocellulose, polyvinyl difluoride or activated nylon. In the claims currently amended, the invention is also directed to replicate copies of a biomolecule, wherein the biomolecules are distributed throughout the colloidal suspension and are bound to the matrix material particles. The biomolecules of the invention are specifically limited to proteins or oligopeptides.

Each and every elements of the claimed invention is not anticipated by Van Ness et al. The present invention is distinguishable from Van Ness et al. because this cited reference fails to anticipate that the biomolecules are proteins or oligopeptides. Van Ness et al. is directed only to

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oligonucleotides. Van Ness et al. fails to anticipate each and every element of the claimed invention.

The remaining rejections under 35 U.S.C. §102(b), paragraphs 3 to 7 (pages 2-4), in the Office Action have been withdrawn due to the improper grouping of claims. As particularly discussed with the Examiner during the Examiner's Interview, the cited references, Nagai et al. (U.S. Patent 5,194,372), Delair et al. (U.S. Patent 6,033,853), Kawaguchi et al. (U.S. Patent 5,122,600), Lewis et al. (WO 00/00808) and Seul (WO 97/40385), cannot anticipate the claimed invention due to the fact that the invention is directed to nitrocellulose, polyvinyl difluoride or activated nylon in the biomolecule-binding matrix material. Moreover, none of these cited references use proteins or oligopeptides attached to array particles. Accordingly, each and every element of the claimed invention is not anticipated by the cited references.

Claim Rejections - 35 U.S.C. §103

35 U.S.C. §103(a) rejections to the various dependent claims are maintained, either alone or in combination, with the references cited under the 35 U.S.C. §102 rejections. Subsequent to the Examiner's Interview, it is now understood that Van Ness et al. is the sole primary reference applied under §103(a).

Applicants respectfully traverse the foregoing rejections.

As previously argued, Van Ness et al. cannot anticipate the claimed invention. In addition, Van Ness et al. also fails to make the claimed invention obvious. Van Ness et al. fails to teach or suggest using proteins or oligopeptides as the biomolecule that are bound to the matrix material particles. The use of oligonucleotides as nucleic acid probes on microarrays are

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generally well known in the art. The significant difference between using oligonucleotides and proteins or oligopeptides is the difficulty in working with proteins due to the nature of the protein itself. With temperature variability, oligonucleotides are durable and amenable to attachment to a solid support without enzymatic breakdowns. In contrast, proteins and oligopeptides are sensitive to temperature and hydration, whether it is to heating, freezing or drying. With temperature changes, proteins lose their tertiary conformation, thereby affecting and disrupting potential epitopes. Once proteins dry, they denature losing their charges and hydrophobic groups causing relevant binding sites to disappear. Unexpectedly, in the practice of the present invention, protein or oligopeptide attachments to the matrix material particles remain stable against temperature variability thereby allowing the epitopes, or binding sites, to be reactive. Therefore, Van Ness et al. also cannot make the claimed invention obvious.

All secondary references applied to the dependent claims fail to cure the deficiencies found in Van Ness et al. There are two factors that make the secondary references inapplicable as to make the claimed invention obvious. None of the cited references teaches or suggests having the matrix material particles be made of nitrocellulose, polyvinyl difluoride or activated nylon. The cited references also do not teach or suggest having replicate biomolecules that are proteins or oligopeptides attached to said matrix material particles suspended in colloidal form. Either alone or in combination, one of ordinary skilled in the art would not glean any teaching or suggestion from the cited references to try using proteins or oligopeptides onto particles made of nitrocellulose, polyvinyl difluoride or activated nylon materials

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based on the nature of the biomolecules and those specific materials. Accordingly, Applicants respectfully request reconsideration and withdrawal of the foregoing rejections.

CONCLUSION

Based on the foregoing, entry of the amendments and remarks presented herein, reconsideration and withdrawal of all the rejections and allowance of application with all pending claims are respectfully requested.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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